AMENDMENTS TO THE CLAIMS

1-118. (Canceled)

119. (Previously Presented) A method for processing data from a glucose sensor, comprising:

monitoring a data stream from a glucose sensor;

detecting transient non-glucose related signal artifacts in the data stream and evaluating a severity thereof based at least in part on an amplitude of the transient non-glucose related signal artifacts; and

replacing with an electronic device at least some of the signal artifacts with one or more estimated glucose values in response to the evaluated severity meeting a criterion, wherein replacing comprises outputting or displaying the one or more estimated glucose values.

120. (Previously Presented) A method for processing data from a glucose sensor, comprising:

monitoring a data stream from a glucose sensor;

detecting transient non-glucose related signal artifacts in the data stream and evaluating a severity thereof based at least in part on a duration of the transient non-glucose related signal artifacts; and

replacing with an electronic device at least some of the signal artifacts with one or more estimated glucose values in response to the evaluated severity meeting a criterion.

121. (Currently Amended) A method for processing data from a glucose sensor, comprising:

monitoring a data stream from a glucose sensor;

detecting transient non-glucose related signal artifacts in the data stream and evaluating a severity thereof based at least in part on a rate-of-change of the transient non-glucose related signal artifacts; and

replacing with an electronic device at least some of the signal artifacts with one or more estimated glucose values in response to the evaluated severity meeting a criterion,

wherein replacing comprises outputting or displaying the one or more estimated glucose values.

122. (Previously Presented) A method for processing data from a glucose sensor, comprising:

monitoring a data stream from a glucose sensor;

detecting transient non-glucose related signal artifacts in the data stream and evaluating a severity thereof based at least in part on a frequency content of the transient non-glucose related signal artifacts; and

replacing with an electronic device at least some of the signal artifacts with one or more estimated glucose values.

123. (Previously Presented) The method of claim 119, wherein replacing transient non-glucose related signal artifacts further comprises selectively applying one of a plurality of signal estimation algorithm factors in response to the severity of the signal artifacts.

124. (Previously Presented) The method of claim 123, wherein the plurality of signal estimation algorithm factors comprise a single algorithm with a plurality of parameters that are selectively applied to the algorithm.

125. (Previously Presented) The method of claim 123, wherein the plurality of signal estimation algorithm factors comprise a plurality of distinct algorithms.

126. (Previously Presented) The method of claim 123, wherein selectively applying one of a plurality of signal estimation algorithm factors comprises selectively applying a predetermined algorithm that comprises a set of parameters whose values depend on the severity of the signal artifacts.

127-147. (Canceled)

148. (Previously Presented) The method of claim 119, wherein replacing at least some of the signal artifacts with one or more estimated glucose values comprises outputting data representative of the one or more estimated glucose values, including outputting by at least one of a numeric representation of the one or more estimated glucose values, an indication of directional trend of the one or more estimated glucose values, or a graphical representation of the one or more estimated glucose values.

149. (Previously Presented) The method of claim 148, further comprising filtering the data stream, wherein the one or more estimated glucose values are based on the filtered data stream.

150. (Previously Presented) The method of claim 148, wherein the one or more estimated glucose values are based on an unfiltered data stream.

151. (Previously Presented) The method of claim 119, wherein monitoring a data stream comprises receiving data from at least one of a non-invasive, a minimally invasive, or an invasive glucose sensor.

152. (Previously Presented) The method of claim 119, wherein monitoring a data stream comprises receiving data from at least one of an enzymatic, a chemical, a physical, an electrochemical, a spectrophotometric, a polarimetric, a calorimetric, an iontophoretic, or a radiometric glucose sensor.

153. (Previously Presented) The method of claim 119, wherein detecting transient non-glucose related signal artifacts further comprises at least one of: testing for ischemia within or proximal to the glucose sensor; monitoring a level of pH proximal to the sensor; monitoring a temperature proximal to the sensor; comparing a level of pH proximal to and distal to the sensor; comparing a temperature proximal to and distal to the sensor; monitoring a pressure or stress within the glucose sensor; evaluating historical data for high amplitude noise above a predetermined threshold; performing a Cone of Possibility Detection Method; evaluating the data stream for a non-physiological rate-of-change; monitoring a frequency content of the signal; performing an orthogonal basis function-based transform; performing a Fourier Transform; or performing a wavelet transform.

154. (Previously Presented) The method of claim 119, wherein replacing at least some of the signal artifacts comprises at least one of: performing linear or non-linear regression; performing a trimmed mean; filtering using a non-recursive filter; filtering using a finite impulse response filter; filtering using a recursive filter; filtering using an infinite impulse response filter; performing a maximum average algorithm; or performing a Cone of Possibility Replacement Method.

155. (Previously Presented) The method of claim 119, wherein replacing at least some of the signal artifacts is substantially continual.

156-157. (Canceled)

158. (Previously Presented) The method of claim 119, further comprising discarding at least some of the signal artifacts.

159. (Previously Presented) The method of claim 119, further comprising calibrating the data stream.

160. (Previously Presented) The method of claim 159, wherein detecting transient non-glucose related signal artifacts in the data stream is performed on the calibrated data stream.

161. (Currently Amended) A method for processing data from a glucose sensor, comprising:

monitoring a data stream from a glucose sensor;

calibrating the data stream;

detecting transient non-glucose related signal artifacts and evaluating a severity thereof; and

replacing with an electronic device at least some of the signal artifacts with one or more estimated glucose values in response to the evaluated severity, wherein replacing at least some of the signal artifacts comprises estimating a glucose concentration value, wherein estimating is based on ~~at least one of rate-of-change, acceleration, or~~ a physiological feasibility of one or more calibrated glucose values, wherein replacing comprises outputting or displaying the one or more estimated glucose values.

162. (Previously Presented) The method of claim 120, wherein replacing transient non-glucose related signal artifacts further comprises selectively applying one of a plurality of signal estimation algorithm factors in response to the severity of the signal artifacts.

163. (Previously Presented) The method of claim 162, wherein the plurality of signal estimation algorithm factors comprises a single algorithm with a plurality of parameters that are selectively applied to the algorithm.

164. (Previously Presented) The method of claim 162, wherein the plurality of signal estimation algorithm factors comprises a plurality of distinct algorithms.

165. (Previously Presented) The method of claim 162, wherein selectively applying one of a plurality of signal estimation algorithm factors comprises selectively applying a predetermined algorithm that comprises a set of parameters whose values depend on the severity of the signal artifacts.

166. (Previously Presented) The method of claim 120, wherein replacing at least some of the signal artifacts with one or more estimated glucose values comprises outputting data representative of the one or more estimated glucose values, wherein the data comprises at least one of a numeric representation of the one or more estimated glucose values, an indication of directional trend of the one or more estimated glucose values, or a graphical representation of the one or more estimated glucose values.

167. (Previously Presented) The method of claim 166, further comprising filtering the data stream, wherein the one or more estimated glucose values are based on the filtered data stream.

168. (Previously Presented) The method of claim 166, wherein the one or more estimated glucose values are based on an unfiltered data stream.

169. (Previously Presented) The method of claim 120, wherein monitoring a data stream comprises receiving data from at least one of a non-invasive glucose sensor, a minimally invasive glucose sensor, or an invasive glucose sensor.

170. (Previously Presented) The method of claim 120, wherein monitoring a data stream comprises receiving data from at least one of an enzymatic glucose sensor, a chemical glucose sensor, a physical glucose sensor, an electrochemical glucose sensor, a spectrophotometric glucose sensor, a polarimetric glucose sensor, a calorimetric glucose sensor, an iontophoretic glucose sensor, or a radiometric glucose sensor glucose sensor.

171. (Previously Presented) The method of claim 120, wherein detecting transient non-glucose related signal artifacts further comprises at least one of: testing for ischemia within or proximal to the glucose sensor; monitoring a level of pH proximal to the sensor; monitoring a temperature proximal to the sensor; comparing a level of pH proximal to and distal to the sensor; comparing a temperature proximal to and distal to the sensor; monitoring a pressure or stress within the glucose sensor; evaluating historical data for high amplitude noise above a predetermined threshold; performing a Cone of Possibility Detection Method; evaluating the data stream for a non-physiological rate-of-change; monitoring the frequency content of the signal; performing an orthogonal basis function-based transform; performing a Fourier Transform; or performing a wavelet transform.

172. (Previously Presented) The method of claim 120, wherein replacing at least some of the signal artifacts comprises at least one of: performing linear or non-linear regression; performing a trimmed mean; filtering using a non-recursive filter; filtering using a finite impulse response filter; filtering using a recursive filter; filtering using an infinite impulse response filter; performing a maximum average algorithm; or performing a Cone of Possibility Replacement Method.

173. (Previously Presented) The method of claim 120, wherein replacing at least some of the signal artifacts is substantially continual.

174. (Previously Presented) The method of claim 120, further comprising discarding at least some of the signal artifacts.

175. (Previously Presented) The method of claim 120, further comprising calibrating the data stream.

176. (Canceled).

177. (Previously Presented) The method of claim 121, wherein replacing transient non-glucose related signal artifacts further comprises selectively applying one of a plurality of signal estimation algorithm factors in response to the severity of the signal artifacts.

178. (Previously Presented) The method of claim 177, wherein the plurality of signal estimation algorithm factors comprises a single algorithm with a plurality of parameters that are selectively applied to the algorithm.

179. (Previously Presented) The method of claim 177, wherein the plurality of signal estimation algorithm factors comprises a plurality of distinct algorithms.

180. (Previously Presented) The method of claim 177, wherein selectively applying one of a plurality of signal estimation algorithm factors comprises selectively applying a predetermined algorithm that comprises a set of parameters whose values depend on the severity of the signal artifacts.

181. (Previously Presented) The method of claim 121, wherein replacing at least some of the signal artifacts with one or more estimated glucose values comprises outputting data representative of the one or more estimated glucose values, wherein the data comprises at least one of a numeric representation of the one or more estimated glucose values, an indication of

directional trend of the one or more estimated glucose values, or a graphical representation of the one or more estimated glucose values.

182. (Previously Presented) The method of claim 181, further comprising filtering the data stream, wherein the one or more estimated glucose values are based on the filtered data stream.

183. (Previously Presented) The method of claim 181, wherein the one or more estimated glucose values are based on an unfiltered data stream.

184. (Previously Presented) The method of claim 121, wherein monitoring a data stream comprises receiving data from at least one of a non-invasive glucose sensor, a minimally invasive glucose sensor, or an invasive glucose sensor.

185. (Previously Presented) The method of claim 121, wherein monitoring a data stream comprises receiving data from at least one of an enzymatic glucose sensor, a chemical glucose sensor, a physical glucose sensor, an electrochemical glucose sensor, a spectrophotometric glucose sensor, a polarimetric glucose sensor, a calorimetric glucose sensor, an iontophoretic glucose sensor, or a radiometric glucose sensor.

186. (Previously Presented) The method of claim 121, wherein detecting transient non-glucose related signal artifacts further comprises at least one of: testing for ischemia within or proximal to the glucose sensor; monitoring a level of pH proximal to the sensor; monitoring a temperature proximal to the sensor; comparing a level of pH proximal to and distal to the sensor; comparing a temperature proximal to and distal to the sensor; monitoring a pressure or stress within the glucose sensor; evaluating historical data for high amplitude noise above a predetermined threshold; performing a Cone of Possibility Detection Method; evaluating the data stream for a non-physiological rate-of-change; monitoring the frequency content of the signal; performing an orthogonal basis function-based transform; performing a Fourier Transform; or performing a wavelet transform.

187. (Previously Presented) The method of claim 121, wherein replacing at least some of the signal artifacts comprises at least one of: performing linear or non-linear regression; performing a trimmed mean; filtering using a non-recursive filter; filtering using a finite impulse response filter; filtering using a recursive filter; filtering using an infinite impulse response filter;

performing a maximum average algorithm; or performing a Cone of Possibility Replacement Method.

188. (Previously Presented) The method of claim 121, wherein replacing at least some of the signal artifacts is substantially continual.

189. (Previously Presented) The method of claim 121, further comprising discarding at least some of the signal artifacts.

190. (Previously Presented) The method of claim 121, further comprising calibrating the data stream.

191. (Previously Presented) The method of claim 190, wherein detecting transient non-glucose related signal artifacts in the data stream is performed on the calibrated data stream.

192. (Previously Presented) The method of claim 122, wherein replacing transient non-glucose related signal artifacts further comprises selectively applying one of a plurality of signal estimation algorithm factors in response to the severity of the signal artifacts.

193. (Previously Presented) The method of claim 192, wherein the plurality of signal estimation algorithm factors comprises a single algorithm with a plurality of parameters that are selectively applied to the algorithm.

194. (Previously Presented) The method of claim 192, wherein the plurality of signal estimation algorithm factors comprises a plurality of distinct algorithms.

195. (Previously Presented) The method of claim 192, wherein selectively applying one of a plurality of signal estimation algorithm factors comprises selectively applying a predetermined algorithm that comprises a set of parameters whose values depend on the severity of the signal artifacts.

196. (Previously Presented) The method of claim 122, wherein replacing at least some of the signal artifacts with one or more estimated glucose values comprises outputting data representative of the one or more estimated glucose values, wherein the data comprises at least one of a numeric representation of the one or more estimated glucose values, an indication of directional trend of the one or more estimated glucose values, or a graphical representation of the one or more estimated glucose values.

197. (Previously Presented) The method of claim 196, further comprising filtering the data stream, wherein the one or more estimated glucose values are based on the filtered data stream.

198. (Previously Presented) The method of claim 196, wherein the one or more estimated glucose values are based on an unfiltered data stream.

199. (Previously Presented) The method of claim 122, wherein monitoring a data stream comprises receiving data from at least one of a non-invasive, a minimally invasive, or an invasive glucose sensor.

200. (Previously Presented) The method of claim 122, wherein monitoring a data stream comprises receiving data from at least one of an enzymatic glucose sensor, a chemical glucose sensor, a physical glucose sensor, an electrochemical glucose sensor, a spectrophotometric glucose sensor, a polarimetric glucose sensor, a calorimetric glucose sensor, an iontophoretic glucose sensor, or a radiometric glucose sensor.

201. (Previously Presented) The method of claim 122, wherein detecting transient non-glucose related signal artifacts further comprises at least one of: testing for ischemia within or proximal to the glucose sensor; monitoring a level of pH proximal to the sensor; monitoring a temperature proximal to the sensor; comparing a level of pH proximal to and distal to the sensor; comparing a temperature proximal to and distal to the sensor; monitoring a pressure or stress within the glucose sensor; evaluating historical data for high amplitude noise above a predetermined threshold; performing a Cone of Possibility Detection Method; evaluating the data stream for a non-physiological rate-of-change; monitoring the frequency content of the signal; performing an orthogonal basis function-based transform; performing a Fourier Transform; or performing a wavelet transform.

202. (Previously Presented) The method of claim 122, wherein replacing at least some of the signal artifacts comprises at least one of: performing linear or non-linear regression; performing a trimmed mean; filtering using a non-recursive filter; filtering using a finite impulse response filter; filtering using a recursive filter; filtering using an infinite impulse response filter; performing a maximum average algorithm; or performing a Cone of Possibility Replacement Method.

203. (Previously Presented) The method of claim 122, wherein replacing at least some of the signal artifacts is substantially continual.

204. (Previously Presented) The method of claim 122, wherein replacing at least some of the signal artifacts is initiated when the severity of signal artifacts meets a criterion.

205. (Previously Presented) The method of claim 122 wherein replacing at least some of the signal artifacts is terminated when the severity of signal artifacts meets a criterion.

206. (Previously Presented) The method of claim 122, further comprising discarding at least some of the signal artifacts.

207. (Previously Presented) The method of claim 122, further comprising calibrating the data stream.

208. (Canceled).

209. (Previously Presented) The method of claim 119, further comprising filtering the monitored data stream.

210. (Previously Presented) The method of claim 119, wherein the data stream comprises a filtered data stream.

211. (Previously Presented) The method of claim 119, wherein the data stream comprises a raw data stream.

212. (Canceled).

213. (Previously Presented) The method of claim 119, wherein detecting transient non-glucose related signal artifacts further comprises detecting high frequency cycles

214. (Previously Presented) The method of claim 119, wherein the amplitude is associated with low noise that substantially decreases the amplitude.

215. (Previously Presented) The method of claim 119, wherein evaluating a severity of signal artifacts based at least in part on an amplitude comprises measuring amplitudes of high frequency cycles.

216. (Previously Presented) The method of claim 119, further comprising outputting the one or more estimated glucose values.

217. (Previously Presented) The method of claim 119, further comprising outputting the data stream.

218. (Previously Presented) The method of claim 119, further comprising outputting the data stream and the one or more estimated glucose values.

219. (Previously Presented) The method of claim 119, further comprising evaluating whether the one or more estimated glucose values is outside a predetermined range, wherein the predetermined range is defined by boundaries derived from a projected rate of change and/or acceleration of estimated glucose values.

220. (Previously Presented) The method of claim 219, further comprising discarding the one or more estimated glucose values if the one or more estimated glucose values is outside the predetermined range.

221. (Previously Presented) The method of claim 219, further comprising replacing the one or more estimated glucose values with a predetermined limit value if the one or more estimated glucose values is outside the predetermined range.

222. (Previously Presented) The method of claim 119, further comprising storing the one or more estimated glucose values.

223. (Previously Presented) The method of claim 119, further comprising displaying the one or more estimated glucose values.

224. (Previously Presented) The method of claim 119, wherein replacing at least some of the signal artifacts with one or more estimated glucose values comprises a maximum-average calculation.

225. (Previously Presented) The method of claim 224, wherein the maximum-average calculation comprises selecting a maximum value from the data stream for an interval and averaging the maximum value associated with the interval with at least one maximum value associated with at least one previous interval.

226. (Previously Presented) The method of claim 225, wherein the interval comprises a time period.

227. (Previously Presented) The method of claim 119, wherein replacing at least some of the signal artifacts comprises determining whether the ratio of the one or more estimated glucose values to at least one projected value is outside a predetermined ratio range, and replacing the one or more estimated glucose values with the at least one projected value if the ratio is outside a predetermined ratio range.

228. (Previously Presented) The method of claim 119, wherein detecting transient non-glucose related signal artifacts further comprises using a time series analysis based on a variance of a signal over a window of data.

229. (Previously Presented) The method of claim 228, wherein the window of data is about 15 minutes.

230. (Previously Presented) The method of claim 228, wherein the window of data is about 30 minutes.

231. (Previously Presented) The method of claim 228, wherein the window of data is about 45 minutes.

232. (Previously Presented) The method of claim 228, wherein the window of data is about 60 minutes.

233. (Previously Presented) The method of claim 120, wherein replacing at least some of the signal artifacts with one or more estimated glucose values comprises outputting or displaying the one or more estimated glucose values.

234. (Previously Presented) The method of claim 120, further comprising filtering the monitored data stream.

235. (Previously Presented) The method of claim 120, wherein the data stream comprises a filtered data stream.

236. (Previously Presented) The method of claim 120, wherein the data stream comprises a raw data stream.

237. (Canceled).

238. (Previously Presented) The method of claim 120, wherein detecting transient non-glucose related signal artifacts further comprises detecting high frequency cycles.

239. (Previously Presented) The method of claim 120, further comprising outputting the one or more estimated glucose values.

240. (Previously Presented) The method of claim 120, further comprising outputting the data stream.

241. (Previously Presented) The method of claim 120, further comprising evaluating whether the one or more estimated glucose values is outside a predetermined range, wherein the predetermined range is defined by boundaries derived from a projected rate of change and/or acceleration of estimated glucose values.

242. (Previously Presented) The method of claim 241, further comprising discarding the one or more estimated glucose values if the one or more estimated glucose values is outside the predetermined range.

243. (Previously Presented) The method of claim 241, further comprising replacing the one or more estimated glucose values with a predetermined limit value if the one or more estimated glucose values is outside the predetermined range.

244. (Previously Presented) The method of claim 120, further comprising storing the one or more estimated glucose values.

245. (Previously Presented) The method of claim 120, further comprising displaying the one or more estimated glucose values.

246. (Previously Presented) The method of claim 120, wherein replacing at least some of the signal artifacts with one or more estimated glucose values comprises a maximum-average calculation.

247. (Previously Presented) The method of claim 246, wherein the maximum-average calculation comprises selecting a maximum value from the data stream for an interval and

averaging the maximum value associated with the interval with at least one maximum value associated with at least one previous interval.

248. (Previously Presented) The method of claim 120, wherein replacing at least some of the signal artifacts comprises determining whether the ratio of the one or more estimated glucose values to at least one projected value is outside a predetermined ratio range, and replacing the one or more estimated glucose values with the at least one projected value if the ratio is outside a predetermined ratio range.

249. (Previously Presented) The method of claim 120, wherein detecting transient non-glucose related signal artifacts further comprises using a time series analysis based on a variance of a signal over a window of data.

250. (Previously Presented) The method of claim 249, wherein the window of data is about 15 minutes.

251. (Previously Presented) The method of claim 249, wherein the window of data is about 30 minutes.

252. (Previously Presented) The method of claim 249, wherein the window of data is about 45 minutes.

253. (Previously Presented) The method of claim 249, wherein the window of data is about 60 minutes.

254. (Previously Presented) The method of claim 121, wherein replacing at least some of the signal artifacts with one or more estimated glucose values comprises outputting or displaying the one or more estimated glucose values.

255. (Previously Presented) The method of claim 121, further comprising filtering the monitored data stream.

256. (Previously Presented) The method of claim 121, wherein the data stream comprises a filtered data stream.

257. (Previously Presented) The method of claim 121, wherein the data stream comprises a raw data stream.

258. (Previously Presented) The method of claim 121, wherein detecting transient non-glucose related signal artifacts further comprises comparing the rate-of-change with a preselected value.

259. (Previously Presented) The method of claim 121, further comprising outputting the one or more estimated glucose values.

260. (Previously Presented) The method of claim 121, further comprising outputting the data stream.

261. (Previously Presented) The method of claim 121, further comprising evaluating whether the one or more estimated glucose values is outside a predetermined range, wherein the predetermined range is defined by boundaries derived from a projected rate of change and/or acceleration of estimated glucose values.

262. (Previously Presented) The method of claim 261, further comprising discarding the one or more estimated glucose values if the one or more estimated glucose values is outside the predetermined range.

263. (Previously Presented) The method of claim 261, further comprising replacing the one or more estimated glucose values with a predetermined limit value if the one or more estimated glucose values is outside the predetermined range.

264. (Previously Presented) The method of claim 121, further comprising storing the one or more estimated glucose values.

265. (Previously Presented) The method of claim 121, further comprising displaying the one or more estimated glucose values.

266. (Previously Presented) The method of claim 121, wherein replacing at least some of the signal artifacts with one or more estimated glucose values comprises a maximum-average calculation.

267. (Previously Presented) The method of claim 266, wherein the maximum-average calculation comprises selecting a maximum value from the data stream for an interval and averaging the maximum value associated with the interval with at least one maximum value associated with at least one previous interval.

268. (Previously Presented) The method of claim 267, wherein the interval comprises a time period.

269 (Previously Presented) The method of claim 121, wherein replacing at least some of the signal artifacts comprises determining whether the ratio of the one or more estimated glucose values to at least one projected value is outside a predetermined ratio range, and replacing

the one or more estimated glucose values with the at least one projected value if the ratio is outside a predetermined ratio range.

270. (Previously Presented) The method of claim 122, wherein replacing at least some of the signal artifacts with one or more estimated glucose values comprises outputting or displaying the one or more estimated glucose values.

271. (Previously Presented) The method of claim 122, further comprising filtering the monitored data stream.

272. (Previously Presented) The method of claim 122, wherein the data stream comprises a filtered data stream.

273. (Previously Presented) The method of claim 122, wherein the data stream comprises a raw data stream.

274. (Previously Presented) The method of claim 122, wherein the frequency content comprises frequencies contained within the data stream.

275. (Previously Presented) The method of claim 122, wherein evaluating the severity of signal artifacts based at least in part on a frequency content of the transient non-glucose related signal artifacts comprises detecting data stream that has high frequency.

276. (Previously Presented) The method of claim 122, further comprising outputting the one or more estimated glucose values.

277. (Previously Presented) The method of claim 122, further comprising outputting the data stream.

278. (Previously Presented) The method of claim 122, further comprising evaluating whether the one or more estimated glucose values is outside a predetermined range, wherein the predetermined range is defined by boundaries derived from a projected rate of change and/or acceleration of estimated glucose values.

279. (Previously Presented) The method of claim 278, further comprising discarding the one or more estimated glucose values if the one or more estimated glucose values is outside the predetermined range.

280. (Previously Presented) The method of claim 278, further comprising replacing the one or more estimated glucose values with a predetermined limit value if the one or more estimated glucose values is outside the predetermined range.

281. (Previously Presented) The method of claim 122, further comprising storing the one or more estimated glucose values.

282. (Previously Presented) The method of claim 122, further comprising displaying the one or more estimated glucose values.

283. (Previously Presented) The method of claim 122, wherein replacing at least some of the signal artifacts with one or more estimated glucose values comprises a maximum-average calculation.

284. (Previously Presented) The method of claim 283, wherein the maximum-average calculation comprises selecting a maximum value from the data stream for an interval and averaging the maximum value associated with the interval with at least one maximum value associated with at least one previous interval.

285. (Previously Presented) The method of claim 284, wherein the interval comprises a time period.

286. (Previously Presented) The method of claim 122, wherein replacing at least some of the signal artifacts comprises determining whether the ratio of the one or more estimated glucose values to at least one projected value is outside a predetermined ratio range, and replacing the one or more estimated glucose values with the at least one projected value if the ratio is outside a predetermined ratio range.

287. (Previously Presented) The method of claim 122, wherein evaluating a severity of signal artifacts based at least in part on the frequency content comprises using a time series analysis based on a variance of a signal over a window of data.

288. (Previously Presented) The method of claim 287, wherein the window of data is about 15 minutes.

389. (Previously Presented) The method of claim 287, wherein the window of data is about 30 minutes.

290. (Previously Presented) The method of claim 287, wherein the window of data is about 45 minutes.

291. (Previously Presented) The method of claim 287, wherein the window of data is about 60 minutes.

292 (Canceled).

293. (Previously Presented) The method of claim 122, wherein evaluating a severity of signal artifacts based at least in part on the frequency content comprises detecting high frequency cycles.

294. (Previously Presented) The method of claim 161, wherein replacing transient non-glucose related signal artifacts further comprises selectively applying one of a plurality of signal estimation algorithm factors in response to the severity of the signal artifacts.

295. (Previously Presented) The method of claim 294, wherein the plurality of signal estimation algorithm factors comprises a single algorithm with a plurality of parameters that are selectively applied to the algorithm.

296. (Previously Presented) The method of claim 294, wherein the plurality of signal estimation algorithm factors comprises a plurality of distinct algorithms.

297. (Previously Presented) The method of claim 294, wherein selectively applying one of a plurality of signal estimation algorithm factors comprises selectively applying a predetermined algorithm that comprises a set of parameters whose values depend on the severity of the signal artifacts.

298 (Previously Presented) The method of claim 161, wherein replacing at least some of the signal artifacts with one or more estimated glucose values further comprises outputting data representative of the one or more estimated glucose values, including outputting by at least one of a numeric representation of the one or more estimated glucose values, an indication of directional trend of the one or more estimated glucose values, or a graphical representation of the one or more estimated glucose values.

299. (Previously Presented) The method of claim 298, further comprising filtering the data stream, wherein the one or more estimated glucose values are based on the filtered data stream.

300. (Previously Presented) The method of claim 298, wherein the one or more estimated glucose values are based on an unfiltered data stream.

301. (Previously Presented) The method of claim 161, wherein monitoring a data stream comprises receiving data from at least one of a non-invasive glucose sensor, a minimally invasive glucose sensor, or an invasive glucose sensor.

302. (Previously Presented) The method of claim 161, wherein monitoring a data stream comprises receiving data from at least one of an enzymatic glucose sensor, a chemical glucose sensor, a physical glucose sensor, an electrochemical glucose sensor, a spectrophotometric glucose sensor, a polarimetric glucose sensor, a calorimetric glucose sensor, an iontophoretic glucose sensor, or a radiometric glucose sensor.

303. (Previously Presented) The method of claim 161, wherein detecting transient non-glucose related signal artifacts further comprises at least one of: testing for ischemia within or proximal to the glucose sensor; monitoring a level of pH proximal to the sensor; monitoring a temperature proximal to the sensor; comparing a level of pH proximal to and distal to the sensor; comparing a temperature proximal to and distal to the sensor; monitoring a pressure or stress within the glucose sensor; evaluating historical data for high amplitude noise above a predetermined threshold; performing a Cone of Possibility Detection Method; evaluating the data stream for a non-physiological rate-of-change; monitoring the frequency content of the signal; performing an orthogonal basis function-based transform; performing a Fourier Transform; or performing a wavelet transform.

304. (Previously Presented) The method of claim 161, wherein replacing at least some of the signal artifacts further comprises at least one of: performing linear or non-linear regression; performing a trimmed mean; filtering using a non-recursive filter; filtering using a finite impulse response filter; filtering using a recursive filter; filtering using an infinite impulse response filter; performing a maximum average algorithm; or performing a Cone of Possibility Replacement Method.

305. (Previously Presented) The method of claim 161, wherein replacing at least some of the signal artifacts is substantially continual.

306. (Previously Presented) The method of claim 161, wherein replacing at least some of the signal artifacts is initiated when the severity of signal artifacts meets a criterion.

307. (Previously Presented) The method of claim 161 wherein replacing at least some of the signal artifacts is terminated when the severity of signal artifacts meets a criterion.

308. (Previously Presented) The method of claim 161, further comprising discarding at least some of the signal artifacts.

309. (Previously Presented) The method of claim 161, further comprising calibrating the data stream.

310. (Previously Presented) The method of claim 309, wherein detecting transient non-glucose related signal artifacts in the data stream is performed on the calibrated data stream.

311. (Previously Presented) The method of claim 161, wherein replacing at least some of the signal artifacts with one or more estimated glucose values comprises outputting or displaying the one or more estimated glucose values.

312. (Previously Presented) The method of claim 161, further comprising filtering the monitored data stream.

313. (Previously Presented) The method of claim 161, wherein the data stream comprises a filtered data stream.

314. (Previously Presented) The method of claim 161, wherein the data stream comprises a raw data stream.

315. (Canceled).

316. (Previously Presented) The method of claim 161, wherein detecting transient non-glucose related signal artifacts further comprises detecting high frequency cycles.

317. (Previously Presented) The method of claim 161, further comprising outputting the one or more estimated glucose values.

318. (Previously Presented) The method of claim 161, further comprising outputting the data stream.

319. (Previously Presented) The method of claim 161, further comprising evaluating whether the one or more estimated glucose values is outside a predetermined range, wherein the predetermined range is defined by boundaries derived from a projected rate of change and/or acceleration of estimated glucose values.

320. (Previously Presented) The method of claim 319, further comprising discarding the one or more estimated glucose values if the one or more estimated glucose values is outside the predetermined range.

321. (Previously Presented) The method of claim 319, further comprising replacing the one or more estimated glucose values with a predetermined limit value if the one or more estimated glucose values is outside the predetermined range.

322. (Previously Presented) The method of claim 161, further comprising storing the one or more estimated glucose values.

323. (Previously Presented) The method of claim 161, further comprising displaying the one or more estimated glucose values.

324. (Previously Presented) The method of claim 161, wherein replacing at least some of the signal artifacts with one or more estimated glucose values comprises a maximum-average calculation.

325. (Previously Presented) The method of claim 324, wherein the maximum-average calculation comprises selecting a maximum value from the data stream for an interval and averaging the maximum value associated with the interval with at least one maximum value associated with at least one previous interval.

326. (Previously Presented) The method of claim 161, wherein replacing at least some of the signal artifacts comprises determining whether the ratio of the one or more estimated glucose values to at least one projected value is outside a predetermined ratio range, and replacing the one or more estimated glucose values with the at least one projected value if the ratio is outside a predetermined ratio range.

327. (Previously Presented) The method of claim 161, wherein detecting transient non-glucose related signal artifacts further comprises using a time series analysis based on a variance of a signal over a window of data.

328. (Previously Presented) The method of claim 327, wherein the window of data is about 15 minutes.

329. (Previously Presented) The method of claim 327, wherein the window of data is about 30 minutes.

330. (Previously Presented) The method of claim 327, wherein the window of data is about 45 minutes.

331. (Previously Presented) The method of claim 327, wherein the window of data is about 60 minutes.